COMMENT

An alternate method of calculating the population density of monsters in Loch Ness

We have arrived at biomass estimates for the Loch Ness monster that are similar to those provided by Sheldon and Kerr (1972), but we have used a different method of calculation. A description of our method follows.

Sheldon et al.(1972) reported that the standing stock of oceanic organisms in ecologically stable areas is relatively independent of individual size when measured over logarithmic size intervals. We assume that this relationship is also valid for large lakes. If so, the size-density relationship for oligotrophic Loch Ness might closely resemble observations for marine areas of low productivity. We used the method of least squares to fit a power function to equatorial Pacific data provided by Sheldon et al. (1972). From this, we estimate that particles of the order of 1 m in diameter will occur at a concentration of 0.0019 ppm.

From data set out by Hutchinson (1957) we estimate the volume of Loch Ness as the product of a mean depth and surface area (57×10^6 m^3 $\times$ 132 m $= 7.52 \times 10^9$ m^3). Accordingly, the total standing stock of monsters is calculated as $0.0019 \times 7.52 \times 10^9/10^6 = 14.3$ m^3 of monster. Each cubic meter of monster might reasonably correspond to 1,100 kg, indicating a biomass of 15,725 kg; this estimate is very close to the 15,675 kg calculated by Sheldon and Kerr (1972) as an upper limit. It follows that our population estimates also agree. The population might range between 157 small monsters (100 kg) and 10 large monsters (1,500 kg).

Our estimates are derived primarily from data for the equatorial Pacific, none other being available. This assumes that the two areas are comparable; it is known that both exhibit low productivity. We note that the abscissa of the particle size /concentration graph we used is logarithmic, so that reasonable changes in our initial choice of monster size will have little effect on the ensuing calculations. We therefore conclude that we are in agreement with Sheldon and Kerr and put these estimates forward as a further contribution to the study of an organism that is at best difficult to observe.

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The Loch Ness monster—limnology or paralimnology?

Now that the discussion of the Loch Ness monster, fact or myth, has been elevated to the learned columns of this journal (Sheldon and Kerr 1972; Scheider and Wallis 1973), I hope limnologists will feel less inhibited professionally in debating, at least in a semiserious vein, whether the monster belongs to their science or to para-